

**ARMED FORCES INSTITUTE OF PATHOLOGY
ORAL HISTORY PROGRAM**

SUBJECT: Dr. Donald West King
INTERVIEWER: Charles Stuart Kennedy
DATE: October 4, 1994

Q: Dr. King, could we start by my asking you about when and where you were born and grew up, and something about your family.

DR. KING: I was born in a house in Cochranton, Pennsylvania, which is near Meadville, which is near Pittsburgh. After three years we moved to Jamestown, New York, which is located some 70 miles south of Buffalo. Our family consisted of our mother and father, three brothers, one sister, and two grandparents, who lived with us for about 15 years.

Q: What were your father and your mother doing?

DR. KING: My mother took care of the children; my father was an insurance agent.

Q: In Jamestown, you went through high school there?

DR. KING: I went through elementary school, junior high school and high school. It was a community of some 45,000 people, largely populated by Scandinavians who came over in the early 1900s and developed what at one time was the second-largest furniture manufacturing center in the United States.

Q: During your high school period, World War II was in full swing. Did that have any impact on your interests?

DR. KING: Yes, I graduated from High School early in order to go to college, so that I could then enter the armed services with more education. In my first year of medical school, after I went through college in about a year and a half, the war ended, I didn't get into the service until the Korean War.

Q: What pointed you towards medicine?

DR. KING: As always, it's, I think, personal influences. At that time, there was a real incidence of polio throughout students in high school and college. Many of my friends were afflicted with it. I'd always been interested in science. At one time, I considered going into the ministry.

Q: You graduated from Syracuse quite quickly, didn't you.

DR. KING: I took about three years of college in a year and a half, and then went right to medical school and graduated in '49.

Q: This was at Syracuse University.

DR. KING: Before it became Upstate University, Syracuse was a college medical school, founded originally as Geneva College. Elizabeth Blackwell, the first woman medical graduate, was a graduate of this school. It was a component of Syracuse University until the late '50s, when the state incorporated it into its system.

Q: How did you become acquainted with pathology?

DR. KING: The day after I entered college, I started working at a hospital, first as an elevator operator then as an orderly. By the time I was in medical school, I was driving the ambulance. My last two years of medical school, I was in charge of a group of fellow students who acted as interns and residents. At this time, I became a principal assistant to the pathologist who visited a couple of times a week. I elected to take a pathology internship, thinking perhaps I'd take two or three years of pathology. The early clinicians in the 1900s, all the internists and surgeons, always had two or three years of pathology before specialty training. Osler taught histology and pathology at McGill before he became Professor of Pathology at the University of Pennsylvania, Professor of Medicine at Hopkins, and afterwards, Regius Professor at Oxford. Most of the surgeons not only had training in pathology, but often continued to do pathology in small hospitals up until the second world war.

Q: What was the change that had people specialize in pathology or in surgery or what have you?

DR. KING: In the late 1800s, in the time of Rokitansky, Ashof, Virchow, and extending up until the '20s, pathology was the science which correlated morphology--the actual changes in organs--with clinical symptoms. The correlation between the coronary artery blockage and heart attacks wasn't recognized until 1921. In the '20s, physiology became very prominent, and many pathologists adopted pathophysiological research techniques. In the '40s, biochemistry became the dominant basic-science science, with enzymology, largely developed by the German School of Warburg, Ebden, Meyerhoff and Krebs. After the 1953 one-half-page Nature publication of Watson and Crick, molecular biology and genetics became most prominent. The basis of all disease is still the cell, and it depends on how far down you study the cell. Do you just look at the nucleus and the cytoplasm? Or do you go to the ultrastructural organelles, largely developed by Porter and Palade at the Rockefeller Institute in the early '50s. Or do you investigate actual chemical structural changes between molecules, e.g. antigens and antibodies. This is being done by pathologists right now at various institutions around the country.

Q: I take it that, as you moved into pathology, you also took a strong interest in the history of pathology.

DR. KING: In most of the schools that I was early associated with--Yale, with its Cushing History of Medicine Library where John Fulton was Director, originally founded by Cushing when he left Harvard to come to Yale in the '30s, and at Columbia--there was a very strong student and faculty historical association at all times, meeting at least monthly, sometimes twice a month. There's always a strong tendency to learn history while you're learning science. I have a library of several hundred books on several aspects of this.

Q: Moving back to the individual history, namely yours, you graduated from Syracuse in 1949. The war was four years over. Where did you go at that point?

DR. KING: I went to Columbia Presbyterian Medical Center for my internship and residency. At this particular time, and more so previously, the number of pathologists in the country was under 4,000, and most of them graduated from maybe a dozen schools.

Q: Which were the schools?

DR. KING: They were mostly, at that time, on the East Coast, starting with Harvard. At that time, Harvard was still divided into several hospitals, so there was a pathology school in each of them. The Boston City, with Kenneth Mallory, Frank Mallory over at Massachusetts General, Shields Warren at the New England Deaconess, and, of course, Arthur Hertig at the Peter Bent Brigham were the four major pathology schools in the Harvard system. Boston University and Tufts had less extensive departments. Moving down the coast, Yale with Harry S.N. Green and Averill Lebow always had a very strong department, dating back to Winternetz, the protégé of William Henry Welch, who was the grandfather of most pathologists in this country. New York was dominated by Ewing at Cornell, Foote, Stewart at Memorial and Stout at Columbia. Flexner was at the University of Pennsylvania, another student of Welch. And Hopkins itself, which, although starting very late, in 1894 largely because of the influence of Welch, produced perhaps 50 percent of all experimental academic pathology leaders in the country for a period up to and including 1930.

Q: When you were taking pathology at Columbia, was there a thrust of what you were looking at that was particular to Columbia?

DR. KING: No, Columbia's professor, Harry Smith, made a reputation in prothrombin studies in the '30s and '40s, but he encouraged his residents to take courses in basic biology, chemistry, and math at Columbia College and paid the tuition. I became interested in cell pathology at a course he sent me to at Woods Hole, which at that time

was the center of marine biology in the country. It was populated by biologists throughout the East Coast, for the entire two to three months of the summer, with going research labs. I've retained this interest in cell structure, function, branching off into immunology sometime later.

Q: From being an intern, you moved to becoming an instructor, is that right?

DR. KING: Yes, it was such a small department, only five or six people. As residents, we were used extensively in the teaching of 120 medical students and for staff conferences throughout the hospital. Now that department probably has 70 or 80 people in it.

Q: Good heavens. The military finally caught up with you in, what, 1952?

DR. KING: Yes, it was during the Korean War, and I received this nice notice saying that I could either volunteer as an officer or be drafted.

But, I enjoyed the Army. I was sent to San Antonio for basic training. Most of the officers were then sent as battalion aid officers in Korea. I have no idea why, because I had no pull that I know of at that time, but I was sent to a radiobiology lab at Fort Knox, which was the Armored Center, I spent two years there working on radiation on cells.

Q: Working on radiation on cells, what was the thrust for this? You were in the military, what were they interested in?

DR. KING: At this time, they were sending up satellites, with animals and cells and tissues, into the atmosphere. The two monkeys that were first sent, Able and Baker, were first examined at this Fort Knox facility. They also had a room the size of this large TV studio that had an armored tank with appropriate personnel in it. The temperatures could be regulated from 10, 15 degrees up to 105 degrees Fahrenheit. Tissues from animals, and sometimes blood cells from humans, were studied as part of the environmental studies. Radiation as well as hot and cold environmental conditions simulating Korea and other potential battlegrounds were studied in animals at this environmental institute.

Q: In a way, you were fortunate to essentially be able continue your study and training as you moved to the military. You were there for two years, 1952 to 1954. And then you went to the University of Chicago.

DR. KING: At this time, it was obvious, if you were going to stay in an academic career, you had to have extensive research preparation. I took one fellowship at the University of Chicago, with an enzyme biochemist called E.S.G. Barron who was trained in the German School of enzymology, particularly in the Krebs Cycle. I then took a second year at the Carlsburg Institute, in Copenhagen, Denmark, which was well known for its protein chemistry over many years. Kejldahl developed the first method for measuring nitrogen;

Sorensen, developed the Sorensen Buffers, and finally, Linderstrom Lang elucidated the tertiary structure of proteins in the Lane Lectures at Stanford in the early 40s.

Q: I notice this says you were a fellow for the U.S. Public Health Service.

DR. KING: The Public Health Service had, and still has, a series of fellowships offered to various individuals, to study, both at the NIH and at universities throughout the country, and indeed throughout the world.

This is what James Watson had when he was at Cambridge doing his studies on DNA. In fact, his fellowship said that he should train in Denmark, approximately the same time I was there, to work with a very famous biochemist. But, after he got there, he decided he'd rather be in England. So he transferred his fellowship on the spot, without any authorization. Hans Clark, who was head of the fellowship committee and chairman of biochemistry at Columbia, came over to see what he was doing, and decided it was worthwhile to leave him there. It turned out to be so.

Q: Did you find any difference in the European approach to pathology, as seen in Copenhagen at that point, than, say, the American approach?

DR. KING: I was really in a biochemistry lab and had some limited experience with the pathology department, which was housed in an institute called the Fibiger Institute. Fibiger attained great fame in 1929 by receiving the Nobel Prize for the discovery of cancer, which turned out to be a complete mistake. At this time, the well-known institutes in Denmark were the Serum Institute in which many of the early viral studies came from; the Cell Biology Institute, supported by the Rockefeller; and the Carlsburg Laboratory. As an exception, the Karalinski Institute, which is both a medical school and a research institute, most of the European research was done outside the university. Unfortunately, that's still the case; The Kaiser Wilhelm Institutes in Germany have now been named the Max Planck Institutes, the Pasteur Institute in France, and various international institutes in Italy and Belgium and Holland, and even the Mill Hill Institutes in England, really dominate the research field. In this country, although there are very famous institutes, including the Rockefeller, Cold Spring Harbor, Friday Harbor, and other excellent institutes in this country, the research has largely come out of the major universities, of which 50 institutions have perhaps 80 percent of the research dollars.

Q: You came back where? I have you coming back as assistant professor of pathology at Yale.

DR. KING: Yes.

Q: Did you have any connection or knowledge of the Armed Forces Institute of Pathology and its work before coming to Yale?

DR. KING: I believe that Harry Smith, who was the chairman at Columbia while I was a resident and intern, was on the advisory committee to the AFIP in the early '50s, because he talked often about General DeCoursey. At this time, the research grants were just starting, and I think they both served on an NIH advisory committee. Later, I was invited by General Joe Blumberg, in the '60s, to come as a consultant to the Institute. Later on, I sent four of my residents from Columbia to become fellows at the Institute, all of whom have become well-known professors in universities around the country.

Q: What was the feeling in this period, in the '50s and '60s, about the AFIP?

DR. KING: It was recognized as perhaps one of the foremost diagnostic pathology programs in the country. They adopted an organ system diagnostic service early whereby people became specialists in microscopic work on a particular organ. The autopsy service here was always small and the Institute was not connected, except initially, to a major hospital.

Q: At Yale, when you were assistant professor of pathology, did you specialize in any particular area?

DR. KING: Cell structure, function, injury to the cell, pathological processes in the cell as a result of injury of drugs, chemicals, and various substances.

Q: Going back in time to the '50s and '60s, were you seeing a change in the approach to the cell in pathology?

DR. KING: In the early '50s, the electron microscope became very popular, so you immediately went from the light microscope to the electron microscope. The '50s were largely occupied with elucidating the structure of normal, ultramicroscopic suborganelles of the cell. Associated with this, was a correlation of the structure with function. After we were able to see the endoplasmic reticulum and the ribosomes, then, concurrently, we started to learn how proteins were synthesized, transported, and secreted from the cell. There was a very famous Swiss botanist in the '40s, Frey Wyssling, who wrote a wonderful book on the cell; and he called the cell "a mother's workbasket," just a jumble of unorganized structures floating around in the cell. In the last 30 years, we've come to understand there's a very organized structure pattern throughout the cell.

Q: In '61, you moved over to an area that was to become more or less the center of your work for some time, and that was Colorado.

DR. KING: Yes. The University of Colorado, again, was a very old school, starting in the early 1800s. At that time, there were no schools in Arizona, New Mexico, the State

of Washington, few in California, (no Davis, UCLA, San Diego), and only two schools in Texas. Colorado and Utah were the centers of research in the Midwest at that time.

A gentleman by the name of Robert Glazer, who was dean at both Colorado and Stanford, assembled a group of other young faculty (I think I was only 33 at the time) who were symbiotic. David Talmadge, in immunology, really developed the clonal-selection theory of antibody synthesis, although another gentleman, McFarland Burnet, received the Nobel Prize for it. C. Henry Kemp was the first person to develop the whole field of child abuse. Theodore Puck, in the department of biophysics, correlated chromosome structure and genetics at a time when it was in its infancy.

While at Colorado, in order to attract more people and to provide a further education for young people in the school, we developed an institute at Aspen, Colorado, called the Given Institute of Pathobiology. For a period of six years, we were able to attract many of the foremost molecular biologists in the world to summer conferences, and provided a basis for communication among very small groups in this field that was just emerging. Now, there are hundreds of such conferences all over the world, but at that time, it was one of the few that was making that attempt.

In addition, through grants from the NIH, we were able to have conferences for M.D. Ph.D. students, conferences in pathology for Ph.D.s who wanted to know more about disease, and a training program for foreign students. At that time, there were many students who went to foreign schools because they couldn't get in United States schools, and then found great difficulty in getting residencies. All these students were Americans, all were U.S. citizens, all were going to come back, and it was our feeling that it was better to bring them back after two years than wait until they were fully poorly trained and come back many years later.

Through the NIH and Representative Paul Rogers, we received a grant with an agreement with many schools: We would take students for eight weeks, and if they were able to achieve honors on national boards, then the schools would take them into their clinical years. We transferred hundreds of these students back into U.S. schools in the six or seven years it was in operation.

Q: I'd like to talk a little about this, because this is sort of a neglected area, and that is that because of the selectivity of the medical schools in the United States, there are many Americans who went abroad to get medical degrees. You were seeing the results of this from, what, two years training overseas, approximately? What was your impression?

DR. KING: Without naming particular schools, because in every country there are excellent schools, particularly in northern Europe, Scandinavia, England, the schools were also very rigorous. In other parts of the world, particularly in our southern hemisphere, there was very little selection of students. Many of the students were in curricula in which they could not speak or read the language. They tried desperately to listen to a foreign-language lecture and then tried to correlate it with an English textbook they'd bootlegged into the country.

The United States is unique in that it requires a three- to four-year college

education before going to medical school. In many countries, one enters medical school immediately after two years of college, without a thorough groundwork in science. In many foreign medical schools, the basic science curriculum, has hundreds, if not thousands, of students, with no opportunity to have laboratory instruction in anatomy, biochemistry, microbiology, and pathology. The whole grounding of science in medicine in this country has always been much higher than in most other countries.

Q: How did you find this trying to bring these young students up to snuff?

DR. KING: It was an eight-week cram course for those who had had two years of preparation, oftentimes had a good college background, and then with great determination on their part to succeed regardless of personal sacrifice.

The problem was, at that time, that the immigration laws allowed large numbers of foreign-trained physicians to take examinations in this country. At the present time, some 18 percent of all physicians in this country are trained in foreign countries; many of them very excellent physicians. The government, in the '60s, tried to remedy this problem of U.S. students going abroad (mistakenly thinking that they could flood the country and thus lower the cost of health care), increased medical schools from 75 to 126, increased the class size from about 8,800 to around 16,000, and at the same time, admitted large numbers of foreign physicians. So, many, many states, with the lure of federal money, increased the number of their schools. Ohio, Illinois, particularly the Midwestern and southern states, doubled or tripled the number of their medical schools, to try to solve this problem.

Q: What was your impression? Particularly, let's look at the field of pathology. Do you think this diluted the...

DR. KING: Pathology has always been a very small field; presently, there may be 15,000 pathologists. I don't think it's diluted the quality, because only two or three percent go into pathology. Secondly, the residency program for pathologists has continued to be very rigorous; now requiring five years of residency after graduation from medical school. The philosophy and bent of people who go into pathology is somewhat different than the people who go into many of the clinical specialties.

Q: Well, for one thing, pathology is not a place where you go to earn large amounts of money.

DR. KING: The average academic pathologist doesn't earn large amounts of money. In the '60s and '70s, in small community hospitals, pathologists often had contracts with the hospital, with either a percentage of the gross or particular fees for individual tests, and for a period of ten or 15 years, a group of clinical pathologists were ranking maybe third or fourth in the hierarchy of pay scales. However, with the government regulation, which obliterated most of these contracts, and with the resurgence of surgeons, with new

techniques, new methods and many new operations and many more people being operated on, particularly in cardiac surgery, orthopedic surgery, neurosurgery, ENT surgery, chest surgery, GYN surgery; these fields have now far passed pathology in financial remuneration.

Q: During this period when you were here, in the '60s up into the '80s, was there a change in the concerns of pathologists, particularly in your area? I'm thinking of environmental changes, both the social and the physical environment, drugs or what's in the air and things.

DR. KING: This was an era of development of clinical pathology. Laboratories became more important; automated machines were able to do 12 and 18 tests simultaneously. There used to be machines that did thousands of sugar examinations every evening, specimens transported in by airplane from all over the country, and sent out the next morning by telephone or fax. So the whole field of diagnostic clinical pathology erupted in a fantastic way.

In morphology, I mentioned going from the light microscope to the phase microscope to the electron microscope. The development of new histochemical immunological staining techniques elucidated a whole new group of substances, which were being discovered by the biochemists, but couldn't be identified in tissue without immunochemistry, and histochemistry examination.

The field scientifically progressed both in techniques, particularly in clinical pathology, and in understanding and correlation with the science of biochemistry and molecular biology.

The field, at one time, separated into the clinical pathologists and anatomic pathologists, and even divided into town and gown (practicing pathologists in community hospitals, usually two to three pathologists for a hospital of a couple of hundred beds, and university centers), where, with the research dollars coming out of the NIH both for research and for training programs, allowed departments to markedly expand. They exploded into areas of genetics, immunology, cell biology, neurobiology, endocrinology, and they expanded diagnostically, replicating the AFIP.

When I was at Columbia in the late '60s and early '70s, we had, like the AFIP, one or two pathologists in every single organ system. The diagnostic expertise required by the orthopedic surgeons, neurosurgeons, heart surgeons, GYN surgeons meant that we now had to train individuals in each of these organ systems. For another period, the '40s, '50s, and '60s, all the diagnostic pathologists were being trained at the AFIP, at the St. Louis school with Ackerman, at the Boston school with Mallory and Castleman, at the New York school with Stewart, Foote, Stout and Lattes and that was about it. The Hopkins school, at this time had diagnostic experts in particular specialities.

Q: Were you finding that you were using material from the AFIP during your time, say, at Columbia.

DR. KING: During this period, we sent four residents to the AFIP--John Fenoglio in the heart, Michael Koss on the lung, and Fred Jacobiac on the eye, John Leetsma in Neuropathology --to gain training and then come back. When I was at Yale, Averill Liebow who was a very prominent pulmonary pathologist, came down for several months to write his book on radiation in Hiroshima. Of course, we used it as a resource wherever we were, but at this time, pathology centers were expanding all over the country, so that it wasn't the only source, although it was still a principal source.

Q: From Colorado, you were also visiting professor and continued your relation with Columbia?

DR. KING: I left Colorado in 1967 and went back to Columbia as chairman for 15 years. While at Columbia, I continued as director of the Given Institute at the University of Colorado. I'd received a gift of land and a gift for the building. I started this before I left Colorado, and offered this whole facility to Columbia, Columbia, very wisely, at that time, was no longer accepting gifts unless there was a firm endowment to take care of it. I finally gave it to the University of Colorado, where it's still a thriving institute, as an extension of their medical school in Denver.

Q: Also, in this time, you were a visiting fellow at Cambridge, from '75 to '76.

DR. KING: During my sojourn at Columbia, I took a sabbatical at Cambridge, at Clare Hall, and during this time started writing, and finished two years later, a textbook on pathobiology, with two colleagues at Columbia.

Q: What was the name of the book?

DR. KING: It was *General Pathology: the Dynamics and Principles*. The impetus for this was Florey's textbook of pathology, in the '50s, and Cameron's book on the cell, both prominent while I was at Yale.

During this period, the pathology curriculum was changing, and the emphasis on general pathology in most medical schools was dropping. So, at the same time, I was writing a textbook for a course that was disappearing from the curriculum. I should have taken in the whole field of pathology. We had the strength at Columbia to do it; in fact, our course syllabus was 800 pages long. But Robbins and Cotran still remains the dominant student textbook in pathology.

Q: You then went to the University of Chicago from '82 to '87.

DR. KING: I was appointed dean and vice president of the University of Chicago, January 1st of 1983. I was dean for five years and then remained five years as Professor of Pathology.

During this time, we renovated most of the old Billings Hospital into modern

research labs, developed the Hughes Institute and received a large grant from the Markey Foundation to develop neurobiology.

After five years as dean, I remained Richard Crane Professor of Pathology, and developed an interest in the National Library of Medicine, where I was a consultant for four years, on a weekly basis. Further, I went back in the research laboratory with my colleagues at Columbia, in the field of immunology, publishing scores of papers on HLA and other aspects of cell regulation.

Q: At the National Library...

DR. KING: At the National Library of Medicine, which, as you know, was really spun off from the Armed Forces Institute as a separate institute in 1955. Dr. De Bakey takes the credit for this, since he was in the surgeon general's office during the war and recognized the need for a large medical library. One of my colleagues from Columbia, Donald Lindberg, became director of the National Library of Medicine, and he asked me to come and help survey the new field of biotechnology that was developing at that time.

Q: Have you kept your association with the library?

DR. KING: Oh, yes, I'm still a consultant there.

Q: How well is it used?

DR. KING: Well, the medicines indicus was started in the '50s, Lindberg made a tremendous advance by computerizing it through a small software program called "Grateful Med." For \$29.75 you can tap into that enormous store of literature. And that just revolutionized the whole area. When I was in the Army, I used to write to the National Library in the '50s, and they would send me Xerox copies of journals. But, now, it's all on the computer and you can print it out in your own office.

More recently, of course, Lindberg has been selected by Vice President Gore to head a large portion of the information transfer project.

Q: This brings us up to what you're doing here. You became the executive director of the American Registry of Pathology here at the Armed Forces Institute, is that right?

DR. KING: Yes. The American Registry of Pathology consists of some 38 separate registries, the first of which was started in 1921 for the purpose of assembling rare specimens from around the country in a particular organ system. It was a very loose organization up until 1977. Although it grew, it had no real identity. In 1977, through the efforts of Senator Ted Kennedy, largely, and the civilian pathology community, it was chartered by Congress as a separate 501c3 tax-exempt foundation. Its board of directors consists of 38 members of various medical societies. All the major pathology societies are strong sponsors of this foundation.

The ARP had the mission from the public law to help the AFIP in its functions. Its early function included two fellowships, the Callender-Binford Fellowships, to receive research grants from other federal agencies,(which the armed services couldn't do), to receive grants from the National Science Foundation, the National Institutes of Health, and other private foundations.

It always had the ability, in the law, to charge for its services, but it wasn't exercised until '91, when we took over the publishing, marketing, and distribution of the fascicles, which had started in the '50s; these were very famous tumor atlases, but were always printed here and the funds returned to the Government Printing Office.

Since that time, the presses in this institute have disappeared. Arrangements which had been previously started with a pathology research foundation called UAREP, helped us select authors from academia throughout the country. Publishing in Cadmus Press, we now distribute, instead of 12,000 copies a year, about 60,000 copies of these fascicles all over the world, 20 percent in Europe.

Similarly, although the law said that we could receive fees for consultation, consultations were always free. We receive about 40,000 consultations from the military and about 15,000 from the civilian. The military remain free; the civilian now have a modest \$100 charge for each specimen. We provide free Federal Express service for the specimens coming in and free fax for the reports going out.

The fellowships have been increased from two to 12, and the research monies for pilot projects have increased from \$50 to \$150,000; Contracts have increased from 3 to 8 million dollars per year.

In general, the Registry continues to be the facilitator for the individual registries to carry on their research and their education programs. The courses have increased to 41, and particularly radiology now occupies perhaps the premier training program in the entire country.

Q: I would have thought that charging for consultation for private things would have elicited a great deal of emotion here at the AFIP, in one way or another. You were here when this started. Could you talk a bit about this, to give a little feel about the organization.

DR. KING: There were mixed feelings. In fact, in a vote of the department chairmen, it was extremely close--about half and half.

There was a feeling that, under the pressure of faster turnaround times and the need, because of the charge, to satisfy immediate diagnostic problems, there would be a diminution in the working up of the case, and that particularly the research and the educational aspects of the case would be lost.

The counter argument, of course, is that all major pathology centers do have rapid turnaround times, and indeed utilize the material more extensively for their research programs.

I think that's been the experience now, that even though the turnaround time has decreased from several weeks to a few days, the material is being used more extensively

for research and educational purposes.

There was also the feeling that this pressure of immediate response and fast turnaround would make the registrars more related with the civilian community than with the military.

I don't think that that's true either, because with this change in the civilian workup, the military have profited. Indeed, the Registry now pays for all the first-class mailing plus the faxing of reports to the military, because the military mail system is inordinately slow. So, every time we've done something for the civilians, including contributing to the infrastructure, recruiting more transcriptionists, increasing couriers, funding the fax, Federal Express, and 800 line, there has been a corollary advantage for the military, which remains the dominant mission of the AFIP.

Q: I might add that the 800 line is a special telephone line anybody can call free of charge to...

DR. KING: To receive information about the case they've sent in.

Q: Do you find, as executive director, that part of your job is going around and cracking the whip to get these cases out?

DR. KING: No, ARP is really a separate foundation. I have no authority over any of the departments. Fortunately, the AFIP executive committee, both with Dr. Karnei, whom I met when I first came, and Dr. Armbrustmacher both desired a very close, interlocking relationship. I give advice on lots of problems, but really have no authority. The organization has grown, so that now we have about a third of the employees in the Institute, either through supplying infrastructure or through contracts for research projects. By the facts it's assumed a more prominent role, but it remains a separate organization.

Q: Are there any major problems that remain, that you're tackling today?

DR. KING: There is no organization that doesn't have problems that are impossible to solve. We've been extremely fortunate up until now, 1994, in that, despite the downsizing of the armed services, we have not suffered great losses in either budget or personnel. We are beginning to see the effects of downsizing on personnel. People are not being replaced. But, with the development of new projects with the medical examiner; the DNA project has exploded and added considerably in personnel and budget. The Infectious Disease Department, the Cellular Pathology Department, the Cardiovascular Department, the Pulmonary Department, and indeed, almost all the departments at the Institute are in a growth phase. The Environmental Department, which has been here for 20 years, has now been expanded into the Center for Environmental Pathology and Toxicology. Their files of 17,000 toxic lesions are presently being computerized. New panels in various organ systems which exhibit toxicity, such as the

liver, the kidney, and the lung, are developing programs to investigate these lesions.

The Army has a great history of research, particularly in vaccines, and infectious disease. We have to maintain the balance between a forward research program, its practical application, and the pure diagnostic work - its consultative process, which is the heart of the Institute, .

Q: Well, doctor, I think maybe we might close at this point.

DR. KING: I want to say, it's been a pleasure, and I think that you're one of the most skillful people I've encountered in conducting such an interview.

Q: Thank you.